REMARKS

Claims 2-21 are pending in the application. Claims 2-4, 6-9, 11-18, 20 and 21 are rejected. Claims 5, 10 and 19 are objected to. Claim 5 has been amended to correct for dependency. No new matter is introduced with these amendments.

Reply to the Rejection of Claim 2-12 and 17-21 under 35 U.S.C. § 102(b)

The Examiner has rejected claims 2-12 and 17-21 as being anticipated by U.S. Patent No. 4,109,024 to Cremer ("Cremer"). Specifically, the Examiner states –

> Cremer discloses a process of making a dough with a binder comprising an a cold-water dispersible starch. Dehydrated potatoes and binder are combined with water to produce a dough. The dough is formed into pieces and fried. The binder gives a better handling properties to the potato pieces; they have greater mechanical strength and can be handled with less breakage between the formation of the piece and frying. The cold-water dispersible starch is made from starch of ordinary amylose content by drying an aqueous slurry or paste on steam-heated rolls or in a spray-dryer. One of the starch that can be used in potato starch that is dried on a drum dryer. (see column 2 lines 35-42, col. 4 lines 25-50 and example 1).
>
> The properties disclosed in 2-4, 8-9, 11-12, 17-18 and 20 are inherent in the Cremer product because the product is a dough which contains an amylose containing starch and the starch is obtained from potato. With respect to the steps of claim 11, Cremer discloses forming a slurry or paste on steam-heated rolls; this cooks and dries the starch. The starch can also be prepared on a drum dryer which cooks and dries the starch slurry. The amylose-containing starch in incorporated into the dough. The pieces prepared from the dough are fried which meet the limitations of claim 7. The dough as set forth in example 1 does not contain any fat; thus, it is a low fat dough which meets the limitations of claim 21.

For the following reasons, Applicants respectfully traverse the Examiner's rejection of claims 2-12 and 17-21 under 35 U.S.C. § 102(b).

Referring to Cremer therein is disclosed a method of producing French fried potatoes from dehydrated potato granules or flakes and a binder (Abstract). The dried potatoes and binder are combined together in water to produce dough that is then formed or extruded and deep fried to produce French fried potatoes (Abstract; col. 2, lines 11-14). The water is added in an amount such that the weight ratio of finished, fried product to dry potato blend is in a range limited to 1.7:1 to 2.2:1 (col. 2, lines 53-65).

The starch binder is one that is compatible with the starch in the potato (col. 2, lines 14-16). The binder includes an amylose starch component and a cold-water-dispersible (gelatinized) starch or gum component, *i.e.*, it is a mixture of starches (Abstract; col. 2, line 47; col. 3, lines 6-16 and 58-63). Special components that impart particular properties to the potato product can also be included in the binder mix (col. 2, lines 17-24).

The amylose starch component of the binder includes granular (defined as ungelatinized) high-amylose starch containing 55% or more amylose, granular edible esters of high-amylose starch, granular edible ethers of high-amylose starch and amylose obtained by starch fractionation and its associated edible esters and ethers (col. 3, lines 33-57). This component accounts for about 50% to about 90% by weight of the binder (col. 3, lines 9-12). The amylose starch component gelatinizes during frying, forming a film that functions as an oil barrier. The amylose starch component also serves in strengthening the dough product both before and after frying. Accordingly, the amylose starch component functions in strengthening the product and limiting oil absorption (col. 3, lines 17-32).

The gelatinized or cold water dispersible component of the binder of Cremer is present in the potato product in an amount of about 1% to about 30% by weight of the product, and about 10% to about 50% by weight of the binder (col. 4, lines 6-10). The cold water dispersible component can be either starch or gum (col. 4, lines 66-68). When the component is a starch derivative, it should have a Brookfield viscosity of at least 3500 centipoise after four hours in order to be functional (col. 4, lines 10-14 and 33-36). Examples of such starches include gelatinized, $POCl_3$ crosslinked potato starch; gelatinized, PO/$POCl_3$ crosslinked tapioca starch; PO crosslinked cornstarch; and pregelatinized crosslinked waxy maize starch ester (col. 4, lines 37-51). Starch derivatives are made cold water dispersible by either drying an aqueous slurry of the starch derivative on a drum dryer or in a spray dryer (col. 4, lines 25-32). Cremer notes that without this cold water dispersible component in the binder, the potato product disintegrates before the amylose starch component can strengthen and limit oil absorption (col. 4, lines 21-24).

Contrary to the Examiner's remarks that the amylose containing starch component of the binder "is obtained from potato", the only reference to the base starch used for the amylose-containing component is maize (see Examples 1 (col. 6, lines 19-20) and IV (amylose obtained by fractionating cornstarch)). Further, Cremer only teaches gelatinizing the cold water

dispersible component on a roll as shown above. According to the invention of Cremer, the amylose containing starch component of the binder gelatinizes when the potato product is fried (col. 3, lines 20-25).

As shown above, Cremer teaches adding water to the potato product in an amount such that the weight ratio of finished, fried product to dry potato blend is in a range limited to 1.7:1 to 2.2:1 (col. 2, lines 53-65). This translates into a water content of approximately 63% to 69%. According to Cremer, too little water makes extrusion difficult, while too much water makes the extruded pieces thin and weak (col. 2, lines 62-68). This implies that the properties of the binder are not sufficient to provide binding properties in low water dough.

In contrast, the process and products of the present invention allow for the production of dough having lower moisture content (see Specification, p. 8, lines 3-10 for an example of dough according to the present invention having only 35% moisture). As noted in the present Specification, dough is worked into sheets from which the claimed physical parameters are determined, which is a different process than the extrusion process of Cremer (see, *e.g.*, Example 2 of the present Specification). In contrast, the potato product of Cremer has higher moisture content and is extruded. One skilled in the art would not expect an extruded, high moisture dough product to have the same physical properties as the dough and dough binder of the present invention ("To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.' " *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999)). Rather, it would be expected that the extruded, high moisture dough product of Cremer would have a much lower elastic modulus than is claimed in the present invention. For at least these reasons, the properties disclosed in the present claims would not be inherent in the Cremer product.

It is believed that these remarks overcome the Examiner's rejection of claims 2-12 and 17-21 as being anticipated by Cremer. Withdrawal, therefore, of the rejection of claims 2-12 and 17-21 under 35 U.S.C. § 102(b) is respectfully requested.

Reply to the Rejection of Claims 8-10 and 17-19 under 35 U.S.C. § 102(b)

The Examiner has rejected claims 8-10 and 17-19 as being anticipated by U.S. Patent No. 4,362,755 to Mitchell *et al.* ("Mitchell"). Specifically, the Examiner states –

> Mitchell et al disclose a modified starch. The starch is prepared from ungelatinized starch such as potato starch, tapioca starch etc.. The starch is prepared by forming a slurry and the slurry is heated and dried simultaneously in a drum dryer.
>
> The properties claimed are inherent in the Mitchell et al product because the starch is prepared from the same source of starch as claimed and it is prepared by drum drying a slurry which is the same process disclosed in the specification to prepare the claimed starch. The limitation of the starch being used as dough binder or for use in baked or fried food product is an intended use of the product. Since the starch is the same, it is inherent that the starch can have the same intended use.

For the following reasons, Applicants respectfully traverse the Examiner's rejection of claims 8-10 and 17-19 as being anticipated by Mitchell.

Referring to Mitchell therein is disclosed a process for preparing a pregelatinized modified starch suitable for use in instant puddings (Abstract). The process of Mitchell allows for the modification of starch without creation of undesirable by-products or residues (col. 1, lines 37-39). The process involves forming slurry of ungelatinized starch and sodium stearoyl-2-lactylate (SSL) or calcium stearoyl-2-lactylate (CSL) (col. 1, lines 58-61). Mitchell believes that the SSL or CSL modifies the amylose and amylopectin of the starch resulting in properties similar to crosslinking (col. 2, lines 54-59; col. 3, lines 48-51). The slurry is then heated by drum drying or heat exchanger for a time sufficient to gelatinize the starch (col. 1, line 61 – col. 2, line 6 and lines 44-47). When drum drying is employed, the solids level in the slurry can be up to 50%, preferably 20 to 40% by weight. When the slurry is heated by heat exchanger, the solids level is at most 10% (col. 1, line 66 – col. 2, line 6). The starch is then dried and ground (col. 3, lines 6-12). Modified starches prepared by the process according to Mitchell can be used in food products such as instant puddings (col. 4, lines 33-35).

Mitchell does not teach or suggest the use of its starches in dough. Further, Mitchell teaches that any type of base starch can be used, with tapioca being preferred (col. 2, lines 29-38). Applicants have previously shown that not all starches work, and that tapioca starch does not fall within the claimed parameters (see Applicants' 28 August 2003 Reply; Graph 2 of the

present application). Table 1 of the present application provides a variety of starches, all prepared by the same process of Example 1, yet each exhibiting different properties. Accordingly, one skilled in the art would not expect all starches prepared by the process according to Mitchell to inherently have the same claimed properties.

It is believed that these remarks overcome the Examiner's rejection of claim 8-10 and 17-19 as being anticipated by Mitchell. Withdrawal of the rejection of claim 8-10 and 17-19 under 35 U.S.C. § 102(b) is respectfully requested.

Reply to the Rejection of Claim 3-16 under 35 U.S.C. § 103(a)

The Examiner has rejected claims 3-16 as being unpatentable over Cremer in view of Mitchell. Specifically, the Examiner states –

> Mitchell et al discloses a process for preparing a pregelatinized modified starch. The starch is prepared using drum drying. Mitchell et al teach the parameters used to prepare the starch using drum drying and the solid level used in drum drying (see col. 1 line 65 through col. 2 line 1, col. 2 line 60 through col. 3 line 12).
>
> Cremer does not disclose the solvent is water, the pH, the concentration and grinding into particles.
>
> Cremer discloses forming a slurry. It would have been obvious to mix the starch with water to form a slurry because water is commonly used to disperse the starch. As to the pH and concentration, Cremer teaches drum drying is used; it would have been obvious to one skilled in the to use the drum drying parameters as taught by Mitchell et al to prepare the starch to use in the Cremer process. It would also have been obvious to grind the starch as taught by Cremer so that the starch is in the size sufficient to use as binder in the dough.

For the following reasons, Applicants respectfully traverse the Examiner's rejection of claims 3-16 under 35 U.S.C. § 103(a).

Cremer and Mitchell were previously discussed, those arguments being incorporated herein. Nowhere does Cremer teach or suggest an amylose containing starch useful as a dough binder. Instead, as previously shown, Cremer teaches a dough binder that is a mixture of at least two components – an amylose containing starch and a cold water dispersible component. The amylose containing starch component of the binder gelatinizes when the potato product is fried, not when it is part of the slurry. Mitchell only addresses the cold water dispersible component of the Cremer binder. Accordingly, one skilled in the art would still believe that the binder of

Cremer require at least two starch components. Further, the dough product of Cremer and the process for making it would require a higher moisture content, resulting in different rheological parameters from the present invention, as noted above. For at least these reasons, Cremer in view of Mitchell does not render the presently claimed invention obvious.

It is believed that these remarks overcome the Examiner's rejection of claims 3-16 as being unpatentable over Cremer in view of Mitchell. Withdrawal, therefore, of the rejection of claims 3-16 under 35 U.S.C. § 103(a) is respectfully requested.

It is believed that the above remarks overcome the Examiner's rejections of the claims under 35 U.S.C. §§ 102(b) and 103(a) as indicated herein above. Withdrawal of the rejections is therefore respectfully requested. Allowance of the claims is believed to be in order, and such allowance is respectfully requested.

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